

ABSTRACT

A hard rock drill barrel has a barrel portion with a downhole hammer drill disposed therein at the barrel's periphery. A pilot portion, in substantial axial alignment with the barrel but having a smaller diameter, extends distally from the barrel for inserting into a pilot shaft of slightly larger diameter than the pilot portion. In operation, the hammer drill excavates a collar around the pilot shaft when the drill barrel is rotated and supplied with pressurized air, thereby excavating a relative large diameter shaft. The drill barrel is hollow and open at its proximal end to receive and collect cuttings flushed into the shaft above the drill barrel. The piloted drill barrel is adjustable to excavate variable diameter shaft portions, enabling the placement of casing within a larger diameter shaft portion. After adjustment of the drill barrel, smaller-diameter shaft excavation proceeds beyond the casing.